$b = \sqrt{2}r(\cos\theta + \sin\theta)\, e^{i\frac{\pi}{4}}$

Or $\cos\theta + \sin\theta = \sqrt{2}\cos(\theta - \frac{\pi}{4})$

d'où $b = 2r\cos(\theta - \frac{\pi}{4})e^{i\frac{\pi}{4}}$

- Signe de $\cos(\theta - \frac{\pi}{4})$:

$\cos(\theta - \frac{\pi}{4}) = 0 \Leftrightarrow \theta - \frac{\pi}{4} = \frac{\pi}{2} + k\pi \quad (k \in \mathbf{Z})$

$\theta = \frac{3\pi}{4} + k\pi$ or $0 \le \theta \le 2\pi$ d'où $\theta = \frac{3\pi}{4}$ ou $\theta = \frac{7\pi}{4}$

θ	0		$\frac{3\pi}{4}$		$\frac{7\pi}{4}$		2π
$\cos(\theta - \frac{\pi}{4})$		+	0	-	0	+	

si $\theta \in \left[0, \frac{3\pi}{4}\right[\cup \left]\frac{7\pi}{4}, 2\pi\right]$ on a : $b = \left[2r\cos(\theta - \frac{\pi}{4}), \frac{\pi}{4}\right]$

si $\theta = \frac{3\pi}{4}$ ou $\theta = \frac{7\pi}{4}$: $b = 0$

si $\theta \in \left]\frac{3\pi}{4}, \frac{7\pi}{4}\right[$: $b = \left[-2r\cos(\theta - \frac{\pi}{4}), \frac{5\pi}{4}\right]$

* $c = a + e^{i\frac{\pi}{3}}\overline{a}$

$c = re^{i\theta} + e^{i\frac{\pi}{3}}re^{-i\theta} = r(e^{i\theta} + e^{i(\frac{\pi}{3} - \theta)})$

$c = re^{i\frac{\pi}{6}}(e^{i(\theta - \frac{\pi}{6})} + e^{-i(\theta - \frac{\pi}{6})}) = re^{i\frac{\pi}{6}}(2\cos(\theta - \frac{\pi}{6}))$

$c = 2r\cos(\theta - \frac{\pi}{6})\, e^{i\frac{\pi}{6}}$

- Signe de $\cos(\theta - \frac{\pi}{6})$

$\cos(\theta - \frac{\pi}{6}) = 0 \Leftrightarrow \theta - \frac{\pi}{6} = \frac{\pi}{2} + k\pi \Leftrightarrow \theta = \frac{2\pi}{3} + k\pi$